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In-depth review of entrepreneurship statistics

Prepared by the Organisation for Economic Cooperation and Development and Eurostat

Summary

The present note is an updated version of the in-depth review paper on entrepreneurship statistics. The Bureau of the Conference of European Statisticians conducted the in-depth review at its meeting in October 2013. The purpose of the reviews carried out by the Bureau is to improve coordination of statistical activities in the region of the United Nations Economic Commission for Europe, identify gaps or duplication of work and address emerging issues.

The note summarises the international statistical activities in the area, identifies issues and problems, and makes recommendations on possible follow-up actions in this area.

The outcome of the review is provided in document ECE/CES/2014/8/Add.1.

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I. Introduction

1. The Bureau of the Conference of European Statisticians (CES) regularly reviews selected statistical areas in depth. The aim of the reviews is to improve coordination of statistical activities in the UNECE region, identify gaps or duplication of work, and address emerging issues. The review focuses on strategic issues and highlights concerns of statistical offices of both a conceptual and a coordinating nature. The current paper provides the basis for the review by summarising the international statistical activities in the selected area, identifying issues and problems, and making recommendations on possible follow-up actions.

2. The CES Bureau selected entrepreneurship statistics for an in-depth review at its meeting in February 2012. OECD and Eurostat volunteered to prepare the paper providing the main basis for the review.

3. This relatively new topic was included by the Bureau in the classification of statistical activities only in 2010. It crosses the traditional boundaries of economics and social statistics, integrating data, often from a range of different sources. It combines topics such as the demography and performance of businesses with the characteristics of individuals, households and societies.

4. In the current economic climate, the role of entrepreneurs in stimulating economic growth is being given renewed attention, and the development of statistical methodology to measure this phenomenon has been a priority for several statistical offices and international organisations. Indeed, if the role of entrepreneurship in economic development has entered the policy debate some decades ago, sound evidence on the entrepreneurial phenomenon, its determinants and impacts is being produced at a slow pace due to the lack of reliable data. This is even more evident as concerns cross-country analysis.

II. Scope and definition of the statistical area covered

5. In the Classification of Statistical Activities (CSA), entrepreneurship is categorised under Domain 3: Environment and multi-domain statistics. The statistical area 3.3.7 Entrepreneurship covers "the measurement of the determinants, performance and impact of entrepreneurial activities of people and organizations". This classification acknowledges that entrepreneurship statistics are a multi-domain statistical area, insofar as self-employment and business demography, for example, are key elements of statistical analysis needed to gauge entrepreneurial efforts.

6. Also, this broad coverage highlights the need to look not only at output-oriented statistics such as enterprise performance (as in business demography), but also to input and impact. Policy makers and analysts alike call for a comprehensive dataset of entrepreneurship statistics to benchmark the situation of businesses in their countries, to assess how policy can support the positive determinants of entrepreneurial performance, and to evaluate the effects of entrepreneurship development and policies on economic and social goals.

A. Measurement of determinants and impact of entrepreneurship

7. The inclusion of determinants and impact of entrepreneurship in the scope of the statistical area introduces two issues. The first is the existence of conceptual models that identify the factors affecting entrepreneurship and that theoretically formalise the economic and social impact to be expected from entrepreneurship. The existing body of research on

entrepreneurship recognises the role of several important determinants of entrepreneurship in a country, including the social, cultural and political context, the institutional framework and market conditions, the access to finance and knowledge, and a country's entrepreneurial (potential and actual) capacity. In terms of impact, the literature points to economic growth, employment creation, innovation, reduction of poverty and social exclusion; to be noted, the lack of entrepreneurship statistics, especially at the international level, has to a large extent limited the production of sound empirical research on entrepreneurship. The measurement of impact also requires econometric models, and these models should be continuously refined as new and better data become available.

8. The second issue is that the range of statistics concerned, when looking at determinants and impact, is potentially quite broad. For that reason, this review takes a pragmatic approach: it focuses mainly on statistics of entrepreneurship performance and covers statistical activities on determinants only when these refer to the development of indicators whose main purpose is entrepreneurship analysis (for instance, indicators of entrepreneurial culture or regulatory framework for entrepreneurship).

B. Measurement of entrepreneurial performance

9. The measurement of entrepreneurial activity for analytical purposes has evolved over time. Until late 1990s, self-employment data were used as the predominant indicator of entrepreneurship; in the last decade, more sophisticated indicators that capture the entrepreneurial activity of individuals or businesses have been developed.

10. Today, statistics measuring entrepreneurial performance are mainly of two types: statistics that focus on individuals (the entrepreneurs), and statistics that focus on businesses (the enterprises). For each of these two types, data collections exist both of official and non-official statistics, the latter often emanating from *ad-hoc* or special surveys by non-statistical institutes. Although very informative, a third type of indicators of entrepreneurial performance, based on the link between data on businesses and individuals, is much less frequent, as availability of data with comprehensive information on both the entrepreneurs and their enterprises is very limited; this type of indicators is virtually non-existent in international data collections.

11. To be noted, entrepreneurship indicators on individuals involve the use of either official statistics on self-employment from Labour Force Surveys, or *ad-hoc* surveys of individuals. Only statistical activities concerning international *ad-hoc* surveys of individuals are considered for the purpose of this in-depth review.

III. Overview of international statistical activities in the area

A. International organisations

1. European Commission

Eurostat

12. Eurostat has provided a key contribution to the development of business demography statistics. In the early 2000s, Eurostat tested a methodology for the computation of birth, death and survival of enterprises based on the use of statistical business register data. During a transitory period, business demography data have been collected by Eurostat from EU Member States under a gentlemen's agreement. From 2009 onwards, EC Regulation 295/2008 concerning structural business statistics, via its Annex IX, constitutes a legal basis for the data collection. Business demography data are provided

annually by statistical offices, and published by Eurostat on its website as a sub-category of structural business statistics.

13. The indicators collected according to Annex IX of Regulation 295/2008 are based on all enterprises, i.e. those with employees and with no employees. They are broken down by size classes, but a separation of demographic events, i.e. births and deaths of employer enterprises from non-employers (for example with only family workers) is not possible. However, studies conducted by the Organisation for Economic Cooperation and Development (OECD) highlighted that the comparability of business demography indicators based on all enterprises in countries outside EU is limited, as different national thresholds in business registers affect the coverage of the smallest size class of enterprises (in particular, enterprises with zero employees). In practice, the thresholds for the inclusion of very small units also vary between EU Member States. As the same OECD studies demonstrated a high comparability of indicators based on the business demography of employer enterprises, Eurostat and OECD have joined efforts to collect harmonised business demography data on employer enterprises. This collection is done in the framework of the OECD-Eurostat Entrepreneurship Indicators Programme, as explained below in section A.2. At the time of writing this, a Commission Regulation to make employer business demography (and, incidentally, indicators on high-growth enterprises) mandatory for all EU Member States is awaiting adoption.

Directorate-General Enterprise and Industry

14. The DG Enterprise and Industry has been studying the development of entrepreneurship in EU Member States for over a decade through a survey on entrepreneurial mindsets. The results, presented in the publication *Eurobarometer Survey on Entrepreneurship*, are aimed at supporting policy makers, in particular in the European Commission's Europe 2020 strategy.

15. The survey investigates people's entrepreneurial mindset (e.g. the motivation, choices, experiences and obstacles linked to self-employment). It also collects information on entrepreneurial activity by respondents who have been involved in any phase of the process of setting-up a business [e.g. who are starting a business, have set up, or taken over, a (still active) business recently or in the past). The survey was initially conducted, with the support of private research companies, every year; starting from 2004 it has been carried out every two or three years.

16. The latest edition of *Eurobarometer Survey on Entrepreneurship* (2012) presented results for the 28 EU countries as well as Brazil, China, Iceland, India, Israel, Japan, Korea, Norway, Russia, Switzerland, Turkey and United States. The target sample includes respondents from different social and demographic groups; for the 2012 survey, 1000 individuals were interviewed in each country, apart from the United States with 3000 interviews.

17. The international survey provides useful insights on several important dimensions on the entrepreneurship phenomenon otherwise difficult to explore. For instance, cultural aspects such as the image of the entrepreneur in the society, the role of education in prompting entrepreneurship or the attitude individuals have towards business failure. The methodology of the survey is well documented; some concerns about the interpretation of the results and the comparability of data however remain, due to the small size of samples and the different share of non-respondents in different countries.

18. In addition, the Commission jointly manages with the European Central Bank a *Survey on the Access to Finance of SMEs*, performed with the support of market research companies. The objective is to provide internationally comparable and frequent data for conditions of access to credit in the Member States of the European Union and other countries associated to EU programmes. The survey, launched in 2009 and conducted every

two years since, provides evidence on the financing conditions faced by SMEs compared with those of large firms. Part of the more comprehensive survey is run by the ECB every six months to assess the latest developments of the financing conditions of firms in the euro area.

Directorate-General Education and Culture (DG EAC)

19. In 2006, the Recommendation of the European Parliament and the Council on Key Competences for Lifelong Learning recognised "sense of initiative and entrepreneurship" as one of eight key competences for every European citizen, to be instilled at all stages of education and training. Subsequently, entrepreneurship education was incorporated in the common objectives for the education and training systems of the EU. In 2013, entrepreneurial education and training was adopted as one of the three main pillars of the Entrepreneurship 2020 Action Plan "Reigniting the Entrepreneurial Spirit in Europe"; also, the Annual Growth Survey for 2013 underlined the importance of developing entrepreneurial skills amongst European youth, to improve their employability and foster business creation by youth.

20. To facilitate the monitoring of entrepreneurial education on an EU level, in December 2012 the European Commission created an Expert Group on Indicators of Entrepreneurial Learning and Competence. The Group has been tasked to develop measures of entrepreneurship education; this implies: discussing the quality and relevance of existing data sources and indicators; agreeing on a limited set of indicators that would be suitable for regular monitoring at EU level; and recommending priorities and ways to address existing data gaps and needs for data refinement in the medium term, also seeking inspiration from experiences and best practices at national and regional level. The publication of the final report from the Expert Group is planned for December 2013/January 2014.

21. The EC Expert Group on Indicators of Entrepreneurship Learning and Competence has reiterated the absence of official data relevant to this policy area. It could be worth examining the scope for including variables on entrepreneurial learning activities and learning outcomes in social surveys in the domain of official statistics, ideally in surveys allowing for a longitudinal dimension to study links between entrepreneurial learning and subsequent employment, active citizenship and new venture creation.

2. Organisation for Economic Co-operation and Development (OECD)

22. In 2006, OECD launched the Entrepreneurship Indicators Programme (EIP), which became in 2007 a joint OECD-Eurostat programme. An ongoing activity, EIP is aimed at the development of policy-relevant and internationally-comparable indicators of entrepreneurship and its determinants, in order to support the analysis of entrepreneurship at the national and international level. The conceptual framework of EIP distinguishes between indicators of entrepreneurial performance, entrepreneurial determinants (specifically, regulatory framework, market conditions, access to finance, knowledge creation and diffusion, entrepreneurial capabilities, and entrepreneurial culture), and social and economic impacts of entrepreneurship.

23. The core set of indicators produced by the programme consists of business demography statistics on the birth, death, survival and growth of employer enterprises. The methodology, which consolidates the original efforts made by Eurostat, recommends the use of statistical business registers for the computation of business demography. Presented in the *Eurostat-OECD Manual on Business Demography Statistics* (2007), the methodology introduces specific definitions for the business demography of employer enterprises. The Programme has also documented trends in self-employment using data

from Labour Force Surveys, analysing strengths and weaknesses of this official data source for the analysis of entrepreneurship.

24. The statistics for the harmonised employer business demography database are produced by statistical offices of OECD and partner countries, with a lag of two to three years with respect to the reference year of the data. 27 countries have so far contributed on an annual basis (or, in some cases, less regularly) to the harmonised collection (Austria, Belgium, Bulgaria, Brazil, Canada, Czech Republic, Estonia, Fin'and, France, Hungary, Israel, Italy, Korea, Latvia, Lithuania, Luxembourg, Mexico, Netherlands, New Zealand, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, United States). Apart from the geographical coverage, the main difference with Eurostat's collection currently conducted under Annex IX of EC Regulation 295/2008 is that the joint OECD-Eurostat database focuses on employer enterprises and also includes indicators of high-growth enterprises.

25. At present, only in a limited number of countries business demography based on the concept of employer enterprise is part of an established data production among the structural business statistics. However, the adoption of the already mentioned EC Regulation on business statistics will make mandatory for EU Member States the production of these data.

26. Other important streams of work of the OECD-Eurostat programme include the development of:

(a) Indicators based on linked data, e.g. indicators resulting from the linkage between data on individuals and businesses or between business data from different sources (statistical and administrative registers, surveys). The linkage of data allows the production of new relevant indicators on underexplored dimensions of entrepreneurship, notably the international activities of young and small enterprises, the quality of labour they employ, or the characteristics of individuals who create new businesses, in terms of gender, age, education, country of origin, previous employment.

The programme has already developed a pilot set of indicators describing international differences in the characteristics of women and men entrepreneurs, the number of businesses owned and controlled by women across countries, and the size, industrial specialisation and performance of these businesses. The approach relies significantly on the linkage of business register data with administrative records on individuals. Gender disaggregated employer business demography indicators as defined in the *Eurostat-OECD Manual on Business Demography Statistics* have been produced for 12 countries. The work focused on sole-proprietor enterprises, but could be extended to partnerships and limited liability companies provided more investments in the linking of administrative data are made by countries.

(b) Timely indicators. To respond to the need of more up-to-date information, a new series of "timely indicators" of trends in new firm creation and bankruptcies has been developed. Timely indicators use recent national data series directly available on websites either of NSOs or alternative sources (e.g. chambers of commerce, business associations, registers of bankruptcies). The series currently cover 18 countries (Australia, Belgium, Canada, Chile, Denmark, Finland, France, Germany, Iceland, Italy, Japan, Netherlands, Norway, Russian Federation, Spain, Sweden, United Kingdom, United States), but coverage will be extended along with the identification and examination of suitable series for additional countries.

While the timely series use national concepts and definitions and are therefore not harmonised across countries, the analysis is nevertheless relevant for the portrayal of national trends. On-going work looks at improving comparability. These new indicators have already attracted considerable attention from analysts and the media. Eurostat and the

European Central Bank are also aiming in producing timely indicators of entrepreneurship for the European Union and Euro areas, respectively.

27. Also to be mentioned, in the context of analytical work on productivity and growth, OECD has coordinated a team of national researchers who tested a set of indicators on the employment dynamics of enterprises of different age and size. For producing the entrepreneurship indicators needed for the research, the national teams relied on staffs in NSOs with access to firm-level data from business registers. This pilot collection generated policy-relevant indicators on entrepreneurship that could subsequently be mainstreamed in the regular production of business statistics by NSOs.

28. Finaliy, OECD constitutes a reference source of comparable data for indicators of entrepreneurship determinants notably in the areas of regulatory framework (e.g. OECD databases of Product Market Regulation Indicators, indicators of Employment Protection Legislation and Revenue Statistics), knowledge creation and diffusion (e.g. OECD databases of R&D statistics and patents) and education (e.g. UNESCO/OECD/Eurostat database on education statistics, OECD PISA database). In the area of access to finance for entrepreneurs and small and young businesses, OECD is aiming at addressing the substantial data gap; a strand of work on debt finance is currently conducted in co-ordination with Central Banks and several international financial institutions. As a complement to this work, statistics on equity capital have been reviewed by EIP, as standard concepts and measures are missing at the international level. Indeed, data on venture capital and business angels are mainly, although not exclusively, produced by the regional and national associations that regroup venture capital companies and business angel groups or networks. This exercise could lead to recommendations to the data producers to improve international comparability; contacts have been established between OECD and some regional and national associations of equity capital.

3. World Bank

29. The World Bank produces different series of entrepreneurship indicators:

- *The World Bank Group Entrepreneurship Database.* This database contains information on new registered enterprises under the legal form of "limited liability companies (LLCs)" or its equivalent in a country's legal system. Other legal forms such as partnerships and sole-proprietorships are not covered, as the World Bank considers that the differences with respect to their definition and regulation worldwide are more complex than in the case of limited liability companies. The sources of data on LLCs are heterogeneous: depending on the country, the information is drawn from an administrative business register, the statistical business register, a ministry or provided by local experts and consulting companies. The database, which is updated every two years, produces a core indicator of "new business density rate", defined as the number of newly registered corporations per 1,000 working-age people (ages 15–64). The database provides also the raw numbers of newly registered limited liability companies, together with qualitative information, when available, on the procedures to register LLCs.

- *The World Bank Enterprise Surveys.* The Enterprise Survey programme started to collect comprehensive firm-level information since 2002, and now covers over 130,000 companies in 135 economies. The data are collected from face-to-face interviews with top managers and business owners. The standard questionnaire includes information on employment and turnover, innovation, access and use of finance, exposure to corruption and experience with laws and regulation. Special questionnaires have been developed to measure the performance and difficulties of informal enterprises.

- *The World Bank Doing Business.* A well-known database, it contains quantitative measures of business regulation (domestic laws, regulations and administrative requirements) in areas considered relevant for starting a business, running and closing a business. Information is gathered by national teams of experts. The units of measurement are private, formal sector companies with limited liability.

30. These data series are extensively cited in the framework of entrepreneurship analysis; their success is much due to their broad geographical coverage (over 120 countries across all regions of the world) and their time span. *Doing Business* indicators in particular are widely used in academic research, government reports and as input for the production of other indicators (notably, for the Competitiveness Index of the Global Competitiveness Report of the World Economic Forum).

31. The main issue with the *Entrepreneurship* and *Doing Business* databases is their focus on limited liability companies instead of all enterprises. There are very large cross-country variations in the propensity of businesses to incorporate, as propensity differs between countries depending on the cost and complexity of registration procedure, tax incentives and even cultural factors. This is not only true for countries of different regions in the world and/or of different level of economic development, but also for countries in a same region, e.g. Member States of the European Union show quite diverse propensity to incorporate. In addition, there are concerns about the full comparability of the information gathered in the three World Bank databases, in light of the variety of sources used, the absence of sampling frames to identify representative samples in several countries and the reliance on private partner companies for the collection of microdata for the *Enterprise Survey* and, in the case of *Doing Business*, the difficulty of assessing national regulations across a large set of very diverse economies.

4. United Nations Statistics Division (UNSD)

32. UNSD in collaboration with UN Women is executing the project Evidence and Data for Gender Equality (EDGE) that seeks to accelerate existing efforts to generate comparable gender indicators on health, education, employment, entrepreneurship and assets. The project, to be implemented from 2013 to 2015, will develop international definitions and methods for measuring entrepreneurship with a gender perspective, and pilot these methods in 10 selected countries, by adding a set of questions/module to planned surveys. A first technical meeting on entrepreneurship will be convened in December 2013, and OECD will contribute to the production of the technical guidelines.

B. Other international activities

1. Global Entrepreneurship Monitor (GEM)

33. The Global Entrepreneurship Monitor (GEM) is an international annual survey of individuals on their perceptions to entrepreneurship, involvement in entrepreneurial activity, and aspirations in doing so. It is meant to provide information to facilitate the investigation of the impact of national institutions on entrepreneurship, and the relationship between entrepreneurship and economic development. It was initiated in 1999 by the London Business School (United Kingdom) and Babson College (United States) covering a small set of countries; since then the geographical scope of the survey has considerably grown, currently covering around 70 developing, emerging and developed economies. GEM is formed of a consortium of national teams, coordinated by a central team of staff.

34. The national teams, typically led by a local university or academic institution, are responsible for collecting GEM data in the country on an annual basis; some countries, however, participate on a less regular basis. The target sample is 2,000 adult individuals. Information collected via the survey is complemented with expert assessments on

entrepreneurial framework conditions. The *GEM Manual - A report on the design, data and quality control of the Global Entrepreneurship Monitoring* (2012) presents the conceptual framework for the data collection and provides the methodology for the adult population survey and the national expert survey.

35. The Global Entrepreneurship Monitor is probably the most cited source of entrepreneurship data; the project has the merit of having conceptualised and started the collection of entrepreneurship indicators at a time, i.e. the late 1990s, when there was a virtually total lack of internationally comparable information regarding entrepreneurship (with the exception of statistics on self-employment). The large coverage of countries, as well as the fact that data for some countries are available in time series of more than ten years, constitutes GEM's strength. On the contrary, the sample construction is an issue, although GEM claims the representativeness of the national samples as concerns the stratification of the population by characteristics of individuals (i.e. age and gender, education level, etc.). Very large variations of the entrepreneurship indicators from one year to the other can be observed in several countries and are, at least in part, to be attributed to issues related to the representativeness of the samples. The reliance on a network of national partners can generate a large heterogeneity in the quality of data collections across countries.

2. Global Entrepreneurship and Development Index (GEDI)

36. In 2010, academics from the Imperial College London (United Kingdom) and George Manson University (United States) developed a Global Entrepreneurship and Development Index (GEDI). This is a composite index that includes both individual and country-level institutional data in order to profile national systems of entrepreneurship across almost 120 countries in the world. The approach consists in weighting the individual-level data with data that describe the broader institutional conditions that prevail in a country. Data on individuals are drawn from the Global Entrepreneurship Monitoring reports, while the information describing national institutional conditions are derived from different sources, including the World Bank, the World Economic Forum and the Heritage Foundation.

37. The project started delivering results only recently and a full evaluation of the relevance of its findings for the purpose of entrepreneurship analysis and policy would be premature. However, it is clear that the GEDI index reproduces some methodological and measurement flaws of the data on individuals and institutions it builds on.

IV. Issues and challenges

38. The review identified the following main issues and challenges.

A. National versus international focus of statistical development efforts

39. In most countries, while an articulated statistical programme for entrepreneurship data does not exist, statistics are available at the national level for monitoring aspects of the entrepreneurial phenomenon (for instance, statistics on self-employment, business demography and, although rarely, indicators from linked data between individuals and business or between data on businesses from different sources).

40. In many cases, however, data developed within a national scope result not comparable at the international level. Two main issues are:

(a) *National definitions of demographic events that depart from the international ones*. For example, the Australian Statistics Bureau (ABS) produces business demography

statistics with the purpose of supporting the analysis of business dynamics in Australia. While the methodology and definitions adopted for the computation of births and deaths of enterprises are close to those recommended by the *Eurostat-OECD Manual*, the differences make nevertheless the Australian data not entirely comparable with business demography indicators in the OECD-Eurostat harmonised database;

(b) *Use of establishments instead of enterprises as statistical units for data compilation.* Several countries, such as Mexico or Japan, have a long tradition of collecting data on businesses through establishment surveys and censuses. There have been significant efforts in these countries to produce business demography statistics that are consistent with the recommendations of the *Eurostat-OECD Manual*. However, the production of internationally comparable data can only be achieved through the use of the same statistical units.

B. Comparability issues of existing international datasets

41. The availability of internationally comparable official statistics on entrepreneurship is limited. Apart from Labour Force Survey statistics on self-employment, the business demography collections respectively by Eurostat (all enterprises) and the OECD-Eurostat Entrepreneurship Indicators Programme (employer enterprises) are the only two examples of work in official statistics at the international level that see the direct involvement of NSOs in the production of statistics whose main purpose is the analysis of entrepreneurial activity. To a certain extent, national innovation surveys based on the Oslo Manual (Guidelines for Collecting and Interpreting Innovation Data) provide comparable information relevant for the analysis of entrepreneurship.

42. In the last ten years, several international datasets of entrepreneurship indicators have become available from research consortia and international organisations, and some that already existed (e.g. the Global Entrepreneurship Monitor) have increased their country coverage as well as the range of indicators they produce. On the Internet, a quick search for international indicators of entrepreneurship gives today the impression of an abundance of information. The need for internationally harmonised statistics, as promoted by the OECD-Eurostat programme, could therefore appear less compelling.

43. However, an in-depth analysis of the content and characteristics of international datasets of entrepreneurship indicators produced outside statistical offices highlights various methodological and conceptual issues that challenge their usefulness as a sound basis for policy making. The main issues include:

- *Concerns over the quality of the data* (representativeness of the data samples and/or reliability of the data sources).
- *Collection of indicators limited to specific legal forms of enterprises.*
- *Limits of information collected only from individuals* (while surveys of individuals can produce a wealth of information on the characteristics of the entrepreneurs or would-be entrepreneurs, the actual performance of the enterprises eventually created remains out of the scope).
- *Limited information on business dynamics given the cross-sectional scope of most of these data.*

C. Development of data linkage and longitudinal datasets

44. Relevant indicators of entrepreneurship can be developed by linking existing data; this is also a means to avoid respondent burden, particularly critical in the domain of

enterprise statistics. There are some successful examples at Eurostat in linking data from various domains, such as trade and business statistics, or within the global value chains domain. All the on-going projects should be rather seen still as feasibility studies, as development work on using micro-data linking to enrich official statistics, and not as a regular data production processes; it is, however, already clear that such data linkages are feasible, yield relevant insights on under-explored dimensions of entrepreneurship (e.g. quality and diversity of the employees, export capacity of enterprise of different size/sector), and reduces the need for additional, costly surveys.

45. The "International Guidelines for Business Registers", currently in preparation by the international Task Force set up by the Conference of European Statisticians, will contribute to further harmonising statistical business registers across countries and promote their development in countries where they do not yet exist. The Guidelines are expected to facilitate data harmonisation and advance work in key areas such as the linking of business register data with other administrative and survey data. These are important aspects for the development and actual computation of entrepreneurship indicators.

D. Measurement of entrepreneurship determinants

46. Data are available in some areas of entrepreneurship determinants as they are collected in the context of statistical activities that have a different or much broader scope than the analysis of entrepreneurship (for instance, statistics on labour market regulation, competition, and education). However, in other areas such as access to finance, international comparable data or data at all are poorly or not available. Also, research on entrepreneurship is still young, especially on topics such as the relationship between culture and entrepreneurship, with the result that appropriate indicators are yet to be identified.

47. Development of work on the measurement of all the elements contributing to entrepreneurship should therefore be encouraged, for instance by international workshops reviewing underexplored topics. The Workshop on "Entrepreneurship Indicators: Determinant groups Capabilities and Culture" organised by Eurostat in December 2010 was instrumental to identify issues subsequently addressed by the EC Expert Group on Indicators of Entrepreneurship Learning and Competence. In some cases, *ad-hoc* international business surveys like the one-off Eurostat survey on "SME access to finance" conducted in 2010 to compare the situations before and after the global crisis, would prove valuable to generate not only data but also insights on the way specific determinants could be measured.

V. Conclusions and recommendations

48. Besides the activities of Eurostat and OECD in the domain of business demography, there is not much international work on entrepreneurship statistics at the international level that is based on official data. Entrepreneurship data produced without the involvement of statistical offices might create the impression that further efforts from NSOs are not needed. It is however a fact that a large part of the available data from non-official statistical sources not only has limited reliability but also fails to address some major dimensions of entrepreneurial activity, such as the performance of new and young enterprises. Even if these data fill an information gap at the international level, they are imperfect substitute for better quality statistics.

49. As the importance of robust, comprehensive and timely data and indicators on entrepreneurship cannot be overestimated for policy formulation and review, the following recommendations are proposed to the attention of the Bureau:

(a) Better use and improvements in business registers and in labour force surveys can provide more solid information for international benchmarking of entrepreneurship.

While the development and maintenance of business registers is a costly endeavour for statistical offices, these data are uniquely suitable to monitor entrepreneurship dynamics and study differences in these dynamics by firm age, sector and size. They are also essential as sampling frames for surveys of new enterprises and their founders. Labour force surveys (LFS) already provide highly reliable information on self-employment. However, the absence of specific questions does not allow disentangling different forms of self-employment (entrepreneurs vs. free professionals). The development and piloting of special modules of questions limited to the self-employed individuals might increase the relevance of LFS for entrepreneurship analysis, with only modest increases in respondents' burdens;

(b) The development of longitudinal datasets (based on 'harmonised' registers) should be encouraged, as well as further efforts to link these datasets to other datasets (surveys). The insights to be gained are considerable, as demonstrated by the OECD Trade by Enterprises Characteristics (TEC) database. The result of the linkage between trade and business registers, the TEC database provides information on exporting activities of enterprises. More information is needed, both for directly exporting firms and those that sell intermediates to larger exporting firms. Linked datasets would provide an important support to the analysis of globalisation;

(c) *Comparability of official business surveys could be improved*; indeed, guidelines for internationally harmonised surveys of businesses and their owners are missing. This implies that data from official firm-level surveys are hardly comparable internationally. The one-off surveys of businesses Eurostat undertakes periodically show the feasibility of collecting internationally comparable and relevant information through firm-level surveys. The Survey of Factors of Business Success conducted by Eurostat in 2006 is a best practice example of international survey data linking information on the entrepreneurs with information on the business performance. The potential of consolidating this model and assess other methods of international harmonisation should be further explored;

(d) In times of scarce resources in many organizations and in NSOs in particular, efforts should be streamlined and coordination ensured by a body that can help avoid overlap in approaches. The OECD-Eurostat Entrepreneurship Indicators Programme (EIP) seems well positioned to spearhead efforts in harmonising entrepreneurship statistics world-wide, and to increase country coverage. Its matrix of entrepreneurship indicators and determinants provides a good analytical tool to portray the whole array of factors influencing entrepreneurial activity and conditions.

50. The Bureau was invited to considering setting up a Task Force that could benefit from the assistance of the EIP co-ordination office. The Task Force could focus on the three activities listed under a), b) and c). Moreover, the Task Force might provide explicit recommendations on data linking for entrepreneurship statistics and analysis, with the help of Eurostat and other statistical offices experienced in the field. Finally, a review of different users' (government officials, academics, civil society) perspectives on available entrepreneurship statistics can be included in the mandate of the Task Force and can help the prioritization of statistical efforts.